



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,236	10/17/2005	Philippe Hocquet	21.1106	1611
23718 7590 12/22/2010 SCHLUMBERGER OILFIELD SERVICES 200 GILLINGHAM LANE MD 200-9 SUGAR LAND, TX 77478				
EXAMINER FULLER, ROBERT EDWARD				
ART UNIT		PAPER NUMBER		
3676				
NOTIFICATION DATE		DELIVERY MODE		
12/22/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

HFE-IP@exchange.slb.com  
PRahmatdoost@exchange.slb.com  
L.Holley@exchange.slb.com

# Office Action Summary

**Application No.**

10/540,236

**Applicant(s)**

HOCQUET ET AL.

**Examiner**

ROBERT E. FULLER

**Art Unit**

3676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4,5,10,11,14-17,19 and 23-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,10,11,14-17,19 and 23-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 9, 2010 has been entered.
2. Applicant's submission has been carefully considered. However, examiner maintains the grounds of rejection set forth in the previous Office Action.

***Claim Objections***

3. Claim 1 is objected to because of the following informalities: The word "comprising" in line 4 should be changed to --comprises--. Appropriate correction is required.
4. Claim 23 is objected to because of the following informalities: the word "turbine" in line 4 should be changed to --braking-- since the bodies are actually mounted on the braking shaft. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4, 5, 10, 11, 14-17, 19, and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Ioanesian (US 3,728,040).

With regard to claim 1, Ioanesian discloses a drilling apparatus comprising: a turbine (1) being provided with a turbine shaft (i.e. the section of shaft 7 shown in Fig. 2), a hydraulic braking device (15) configured to operate with the turbine, wherein the hydraulic braking device comprises a braking shaft (i.e. the section of shaft 7 shown in Fig. 4) coupled to the turbine shaft and one or more bodies (13) rotatably connected to the braking turbine shaft, and wherein when the hydraulic braking device is immersed in a drilling fluid medium, an axial rotation of the turbine shaft causes an axial rotation of the braking shaft which in turn causes a movement of the one or more bodies with respect to the drilling fluid, this movement generating a resisting torque that is a function of the square of the rotation speed of the turbine shaft with respect to the drilling fluid providing a quadratic relation, and wherein the construction of the hydraulic braking device is such that a braking effect is obtained when the rotation speed of the turbine shaft exceeds a predetermined threshold value and the braking effect is not obtained when under the predetermined value as a result of the quadratic relation (column 3, lines 32-41; column 4, lines 53-66).

With regard to claims 4 and 5, the braking shaft is coaxial with the turbine shaft and the two are combined into a single shaft.

With regard to claims 10 and 11, the bodies are connected to the shaft via a connecting means comprising an anchor zone.

With regard to claims 14-17, the bodies are spaced together in a regular manner, have the same axial positions, are identical, and have the same dimensions.

With regard to claim 19, the braking device (15) is downstream of the turbine (1).

With regard to claim 23, Ioanesian discloses a turbine (1) comprising: a turbine shaft (i.e. the portion of shaft 7 shown in Fig. 2) and, a hydraulic braking device (15) comprising a braking shaft (i.e. the portion of shaft 7 shown in Fig. 4) coupled to the turbine shaft and one or more bodies (13) rotatably connected to the turbine shaft; wherein when the hydraulic braking device is immersed in a drilling fluid, an axial rotation of the turbine shaft causes an axial rotation of the braking shaft which in turn causes a movement of the one or more bodies with respect to the drilling fluid, this movement generating a resisting torque that is a function of the square of the rotation speed of the turbine shaft with respect to the drilling fluid providing a quadratic relation; and wherein the construction of the hydraulic braking device is such that a braking effect is obtained when the rotation speed of the turbine shaft exceeds a predetermined threshold value and the braking effect is not obtained when under the predetermined value as a result of the quadratic relation (column 3, lines 32-41; column 4, lines 53-66).

With regard to claims 24 and 25, the bodies extend along a length of the shaft, and in a direction normal to the shaft.

With regard to claims 26 and 27, flow drives the turbine, and that flow is parallel to a length of the bodies.

7. Claims 23-25, 28, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Ranzi (US 2,512,438).

With regard to claim 23, Ranzi discloses a turbine comprising: a turbine shaft (either shaft A or the end of shaft E which connects to blades X); and a hydraulic braking device comprising a braking shaft (i.e. the end of shaft E connected to element D) coupled to the turbine shaft (if the turbine shaft is shaft A—then the coupling is through disc B, and if the turbine shaft is the right end of shaft E, then the coupling is by shaft E itself) and one or more bodies (D') rotatably connected to the turbine shaft (74); wherein when the hydraulic braking device is immersed in a drilling fluid, an axial rotation of the turbine shaft causes an axial rotation of the braking shaft which in turn causes a movement of the one or more bodies with respect to the drilling fluid, this movement generating a resisting torque that is a function of the square of the rotation speed of the turbine shaft with respect to the drilling fluid medium providing a quadratic relation; and wherein the construction of the hydraulic braking device is such that a braking effect is obtained when the rotation speed of the turbine shaft exceeds a predetermined threshold value and the braking effect is not obtained when under the predetermined value as a result of the quadratic relation (Ranzi's turbine is inherently capable of operating in the claimed manner, since Ranzi discloses all of the claimed structure).

With regard to claim 24, the bodies (D') extend along a length of the braking shaft.

With regard to claim 25, the bodies (D') extend normal to the braking shaft.

With regard to claim 28, in the case of the turbine shaft being considered to be shaft A, then the braking shaft and turbine shaft are coupled by a coupling device B.

With regard to claim 29, the bodies (D') are V-shaped.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ioanesian in view of Hagen (US 3,880,547).

Ioanesian fails to disclose a transmission mechanism between the turbine shaft and the braking shaft.

Hagen discloses a braking system (4) for a turbine (2), in which a turbine shaft (10) is connected to a braking shaft (21) via a transmission mechanism (14, 16, etc.—see fig. 1) which enables the turbine shafts and braking shafts to rotate at proportional speeds.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the apparatus of Ioanesian to have a

transmission mechanism similar to that of Hagen, in order to "augment the brake effort at the power turbine without necessitating fundamental changes to the blading of the power turbine" (column 1, lines 33-38).

10. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over loanesian.

loanesian fails to disclose cup-shaped or V-shaped bodies, however, it would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the bodies of loanesian to be cup or V-shaped, since it has been held that a change in the shape of a prior art device is a design consideration within the level of ordinary skill in the art. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

### ***Response to Arguments***

11. Applicant's arguments filed December 9, 2010 have been fully considered but they are not persuasive.

Applicant has argued that loanesian fails to disclose one or more bodies rotatably connected to the braking shaft. Examiner respectfully disagrees. Blades 13 are rotatable connected to the shaft. Blades 11 are not, since they are fixed to housing 3. Since the language of the independent claims is now "comprising," then the braking device can be made up of some bodies which are rotatably connected to the shaft, and some which are not. Therefore, loanesian still meets the limitations of claims 1 and 23 as amended.



Applicant has argued that Ranzi's turbine operates in the opposite manner to the claimed turbine, since Ranzi's turbine shaft is actually the *driven* shaft, and not the *driving* shaft. Examiner respectfully disagrees. The turbine shaft is not structurally limited at all in the independent claims. The claims simply recite a "turbine shaft," and require the turbine shaft to be coupled to the braking shaft. Therefore, any shaft within the turbine can be called the turbine shaft, so long as it is coupled to the braking shaft. Shaft A can be considered the turbine shaft, as it does couple to the braking shaft. In this case, shaft A certainly meets the limitation "an axial rotation of the turbine shaft causes an axial rotation of the braking shaft" as shaft A is the *driving* shaft. Alternatively, the right-hand end of shaft E (as shown in Fig. 1 of Ranzi) can also be called the "turbine shaft," as it too couples to the braking shaft. The claim language is as follows: "wherein when the hydraulic braking device is immersed in a drilling fluid, an axial rotation of the turbine shaft causes an axial rotation of the braking shaft..." Note the usage of the word "when." Because the word "when" is used, then the device must simply be *capable of* operating in the claimed manner, *if* placed in a situation as claimed. In this case, *if* the braking shaft of Ranzi were immersed in a fluid medium, then a rotation of the turbine shaft (i.e. the right end of shaft E) *would* cause rotation of the braking shaft (i.e. the left end of shaft E), since the two shafts are connected. Therefore, the rejection is maintained.

### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT E. FULLER whose telephone number is

(571)272-6300. The examiner can normally be reached on Monday thru Friday from 8:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shane Bomar can be reached on 571-272-7026. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shane Bomar/  
Supervisory Patent Examiner, Art  
Unit 3676

12/16/2010  
/R.E.F./